Rockwell-Collins HF-80 Series System Components

Pete Patton, W0EWQ
7939 Claiborne Lane
Inver Grove, MN 55076
peterpatton@CollinsHF-80.com

Model	Part Number	Description
HF-8010	622-3389-001	Exciter ISB 2 Channel local control
HF-8010A	622-3395-001	Exciter ISB 2 Channel remote control
HF-8014	622-3472-001	Exciter ISB 4 Channel local control
HF-8014A	622-3473-001	Exciter ISB 4 Channel remote control
HF-8020	622-3380-001	RF VT Linear Amplifier 1-KW
HF-8021	622-3381-001	RF VT Linear Amplifier 3-KW
HF-8022	622-3383-001	RF VT Linear Amplifier 1-5,10 KW
HF-8023	622-3490-001	RF SS Linear Amplifier 1-KW
HF-8030	622-3388-001	P/S for HF-8020 115/220V/1PH/50-60Hz
HF-8031	622-3491-001	P/S for HF-8023 115/220V/1PH/50-60Hz
HF-8032	622-3512-001	P/S for HF-8023 115/220V/3PH/50-60Hz
HF-8040A	622-3515-001	Automatic Antenna Coupler 1-KW
HF-8040M	622-3513-001	Automatic Antenna Coupler 1-KW, marine version
HF-8050	622-3385-001	Receiver, SSB, AM, CW, 2 Channel local control

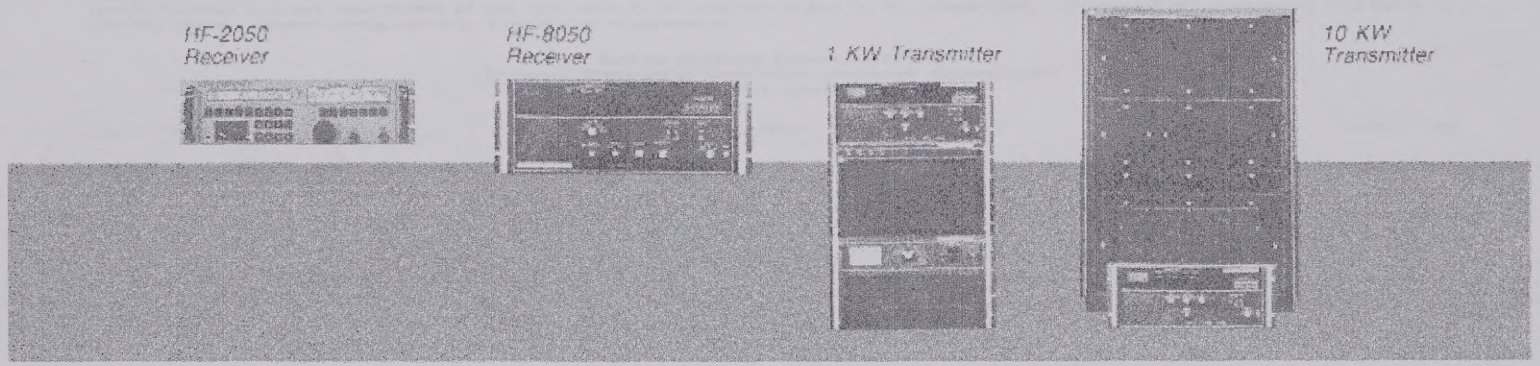
HF-8050A	**622-3393-001**	**Receiver, SSB, AM, CW, 2 Channel remote control**
HF-8054	**622-3474-001**	**Receiver, SSB, AM, CW, 4 Channel local control**
HF-8054A	**622-3475-001**	**Receiver, SSB, AM, CW, 4 Channel remote control**
HF-8060	**622-3386-001**	**Pre-selector, 2 Channel**
HF-8061	**622-3497-001**	**Band Pass Filter/Line Flattener for 8023 Amplifier**
HF-8064B	**622-7505-001**	**Agile Pre-selector, 4 Channel**
HF-8070	**622-3387-001**	**Receiver/Exciter 2 Channel local control**
HF-8070A	**622-3394-001**	**Receiver/Exciter 2 Channel remote control**
HF-8090	**622-3390-001**	**Remote Control for Exciter**
HF-8091	**622-3391-001**	**Remote Control for Receiver**
HF-8092	**622-3392-001**	**Remote Control for Receiver/Exciter**
HF-8096	**622-3602-002/4**	**ALE Communications Processor with SelScan**

Rockwell Collins HF-80 Radio System

Rockwell International

HF Communications Systems (HF-80 Series)

(Transmitters, Transceivers, Receivers)



TRANSMITTERS/TRANSCEIVERS

HF-8020/HF-8022 Power Amplifiers produce a conservatively rated 1- or 10-kW RF power output, (pep and average) with a 100-milliwatt input from the exciter. For installations requiring an antenna that presents more than 3:1 vswr, an optional antenna coupler is available for the 1-kW TX.

HF-8023/8031 is an all-solid-state, 1-kW linear power amplifier and associated power supply. HF-8031 power supply furnishes all operating voltages required by the HF-8023 power amplifier. These units utilize off-line switching converters in a modular design for the ultimate in an efficient lightweight, and maintainable unit. The HF-8023/8031 is fully compatible with HF-80 exciters, transceivers, and antenna couplers.

RECEIVERS

HF-8050/50A receivers operate in the 250-kHz to 30-MHz frequency range with 10-Hz tuning increments standard. USB, LSB, CW, AM, and ISB signals can be received with the HF-8050. The receiver can be controlled with a digital processor by a simple connection to the remote control jack.

HF-8054/54A four-channel ISB receivers provide VLF to HF reception of ISB, SSB, AM, and CW signals. High performance crystal filters are optimized for data reception. A wide range of options includes a digital VSFO high stability frequency standard, external frequency standard option, additional IF filters for AM and CW or RTTY reception, and standard ISB mechanical filters. Two channel versions of the HF-8054 are also available.

HF-8061 Transmit Filter/Line Flattener

HF-8061 bandpass filter provides for reduced intermodulation product levels which result from mixing external signals in applications where severe collocation problems exist. The HF-8061 will also reduce harmonic emission levels and the broadband noise level of the HF-80 1-kW power amplifier. The HF-8061 may be used directly into an antenna presenting a 3:1 vswr referenced to 50 ohms or with an HF-8040 antenna coupler.

HF-8064 Agile HF Preselector

HF-8064 agile preselector is a rapidly tuning bandpass filter, tunable over the 2- to 29.999-MHz frequency range. Its rapid tune time is ideal for scanning applications where conventional mechanically tuned preselectors are too slow. It is designed for use with the Collins HF-80 line of receivers and exciters, as well as other equipment providing suitable control information. The HF-8064 provides selectivity and overload protection for improved receiver performance in a strong signal environment. When used with a transmitter, it reduces broadband noise and improves spurious performance.

HF-8096 SELSCAN® Adaptive Communications Processor

HF-8096 provides operational simplicity through automation by relieving the user from tasks which traditionally required a skilled radio operator. The need for manual frequency-time planning, monitoring primary and alternate frequencies, selecting the proper frequency on which to make a call, and making repeated voice calls until contact is established has been eliminated. The HF-8096 SELSCAN® adaptive communications processor accomplishes these tasks automatically. As an added benefit, positive squelch eliminates annoying and distracting HF background noise when the system is not actually being used to communicate.

VP-100 Voice Encryption Unit

VP-100 series of equipments are used to provide voice security. These units cryptographically alter voice signals so they are not intelligible to an unauthorized listener. Voice quality and recognition are excellent. The units are compatible with HF/UHF/VHF radios and telephone systems.

Ancillary Equipments

Collins Defense Communications can provide ancillary equipments such as: antennas, teletypewriters, TTY converters and keyers, data modems, spectrum analyzers, processors, etc. These are offered to equip complete communication systems to the user's specific requirements. Various ancillary equipments of this type have been selected to assure full compatibility with the HF-80 equipments and systems. Specify desired system configuration or operational requirements.

Collins Defense Communications
Defense Electronics Operations/Rockwell International
Cedar Rapids, Iowa 52498

e523-0773463-0032TR 2-85 Printed in USA

HF-8010A/10A is an ISB/SSB exciter featuring a flexible, low cost design, with high performance characteristics. It is compatible with all HF-80 power amplifiers.

HF-8014/14A exciter has four independent, 2.85-kHz channels for any combination of voice, multiplexed telegraph, or high-speed data communication. Front panel controls allow each channel to be individually enabled or disabled while proportionally compensating the transmitter gain to equally divide the available power among the enabled sidebands. This IF teams and the crystal network have and feature improved performance over mechanical types offered in standard radios.

HF-8020/20A Transceiver is an ideal unit in systems not requiring separate receivers and exciters, and is compatible with all HF-80 power amplifiers.

HF-2060 is the latest in state-of-the-art HF receivers. Introducing Digital Signal Processing technology. The HF-2060 receiver provides superior performance, high reliability, and operational flexibility not found in contemporary receivers. The key pad and interactive display have been designed to provide the operator with quick access to all operating parameters of the receiver. Immediate recall of 60 preset operating channels or of the ten-digits of the operator. The receiver features 60 dB Hi-Fast Equipment (SINAD) which isolates faults to the module level. The simplicity of digital signal processing circuitry facilitates fault isolation to functional circuits without the use of extensive auxiliary test equipment.

HF Communications Systems (HF-80 Series)

Remote Control Units

HF-80 control units provide complete remote control and status display of equipment using the same front panel layout as the local control units for ease of operator training and operation. In the FSK signalling mode, a receiver or exciter may be controlled from a range of up to five miles. This configuration can take full advantage of the audio terminal in each control unit. The alternate data line characteristic uses EIA RS-232C or MIL-STD-188C voltage levels. This permits parallel controlling of up to 16 receivers or exciters from a distance of up to 500 feet. A thumbwheel address switch on the front panel of the control unit selects the individual receiver or exciter currently being commanded. The control range may be extended to unlimited distances in this mode by using commercial telephone data modems and the local telephone network. System interconnection of a control unit requires only one wire pair each for control and monitor functions plus one pair for each transmit or receive audio line connected.

HF-8090 Control, Exciter (HF-8010A)
HF-8091 Control, Receiver (HF-8050A)
HF-8092 Control, Receiver/Exciter (HF-8070A)
HF-8093 Control, 4-Channel Exciter (HF-8014A)
HF-8094 Control, 4-Channel Receiver (HF-8054A)

HF-8040 1-kW Antenna Coupler

HF-8040 provides automatic 50-ohm RF impedance matching between a variety of whip and long-wire antennas and the HF-80 1-kW transmitter. Up to 250 feet of control and RF interconnect cabling can be used to remote the HF-8040 and antenna from the HF-80 1-kW transmitter.

HF-8060 Preselector/Postselector

HF-8060 Preselector is an automatically tuned bandpass filter tunable over the 2- to 31.999-MHz frequency range. It is designed for use with the Collins HF-80 line of receivers and exciters and other HF equipments. The HF-8060, when used with receivers, provides selectivity and overload protection for improved performance in a strong signal environment. When used with exciters, the HF-8060 filters the 100-milliwatt exciter output to improve suppression of out-of-band noise and spurious signals. As an option, it can be provided with front panel manual frequency control to improve performance of existing receivers in various installations.